

## **REMARKS**

Claims 13-24 are pending in the application. Claim 23 is rejected under 35 U.S.C. § 101. Claim 13-16 are rejected under 35 U.S.C. § 112. Claims 13-14 and 16-19 are rejected under 35 U.S.C. § 102(b). Claims 13-24 are rejected under 35 U.S.C. § 103(a). In view of the foregoing amendment and the following remarks, applicants request reconsideration of the claim rejections and reexamination of the application.

### **I. Claim 23 Meets the Requirements of 35 U.S.C. § 101**

Claim 23 is rejected under § 101 on the ground of being an improper process claim. Applicants respectfully traverse the rejection. Applicants have amended claim 23 to be in more traditional claim format without changing the scope or content of the claim. Applicants request withdrawal of the rejection.

### **II. Claims 13-16 Meet the Definiteness Requirement of 35 U.S.C. § 112**

Claims 13-16 are rejected under § 112, second paragraph for their use of the term “perceptibly” and “perceptibly dissolves in the lysol.” Applicants respectfully traverse the rejection.

The terms “perceptibly” and “perceptibly dissolves” meet the definiteness requirements of 35 U.S.C. § 112. As evidence of meeting the definiteness requirement, applicants submit as Exhibit A to this paper a copy of US patent No. 4,420,441 to Singer, which uses the terms “perceptible” and “perceptible dissolution.” See the Abstract; Column 1, line 15; Column 2, line 41; Column 3, line 40; and claim 1 of the ‘441 patent. See also Column 1, line 26 where the term “perceptibly dissolved” is used. Because the term “perceptibly,” as used by applicants, is the adverb form of perceptible (see, e.g., Merriam-Webster’s Collegiate Dictionary, Tenth Ed.), which is used in the Singer ‘441 patent, applicants submit that the term “perceptibly” and “perceptibly dissolves in the lysol” fully satisfy the definiteness requirement of § 112 and would be well understood by those

skilled in the art. Applicants respectfully request withdrawal of the rejection and reconsideration of the claimed subject matter.

**III. Claims 13-14 and 16-19 are Not Anticipated by Bergna et al.**

Claims 13-14 and 16-19 are rejected under § 102(b) over Bergna et al. (US 4,131,542) together with Grant and Hackh's Chemical Dictionary (page 258) and Chemical Engineer's Handbook (pp. 20-58 to 20-63). Applicants respectfully traverse the rejection.

Bergna et al. does not anticipate claims 13-14 and 16-19. The subject claims call for a lyosol to be introduced into a moving medium in order to form a lyogel. In contrast, Bergna et al. teaches that the tendency of its sol to gel is marked, in its incipient stages, by an increase in the viscosity of the sol (Col. 4, lines 39-41), and that its sol is dried before any substantial increase in viscosity has occurred. (Col. 4, lines 31-35).

Thus, in the Bergna et al. process, a sol is spray dried to achieve rapid drying so as to avoid any substantial increase in viscosity due to gelling, whereas in the subject claims of the present application, a lyosol, in order to form a lyogel, is introduced into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol.

Further, the Examiner acknowledges (in connection with the § 103 rejection discussed below) that Bergna et al. does not disclose how its lyosol is formed, and there is no disclosure in Bergna et al. that the medium used for spray-drying does not perceptibly dissolve in the sol.

Neither the definition of a gel in Grant and Hackh's Chemical Dictionary nor the Chemical Engineer's Handbook disclosure of spray driers cures the fundamental deficiency of Bergna et al. Neither teaches mixing gel forming components to produce a lyosol, after which the lyosol, in order to form a lyogel, is introduced into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol.

Accordingly, claims 13-14 and 16-19 are not anticipated by Bergna et al. taken together with Grant and Hack's Chemical Dictionary and/or the Chemical Engineer's Handbook. Applicants respectfully request withdrawal of the rejection and allowance of the claims.

**IV. Claims 13-14 and 16-22 are Not Obvious Over Bergna et al.**

Claims 13-14 and 16-22 are rejected under § 103(a) over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and optionally in view of the Chemical Engineer's Handbook. Applicants respectfully traverse the rejection.

Claims 13-14 and 16-22 are not obvious over Bergna et al. taken together with Grant and Hackh's Chemical Dictionary and/or the Chemical Engineer's Handbook. The discussion above is incorporated here by reference. In brief, Bergna et al. teaches to avoid any substantial increase in viscosity due to gelling, whereas in the subject claims of the present application, a lyosol, in order to form a lyogel, is introduced into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol. Accordingly, the rejection is in error and should be withdrawn.

**V. Claims 13-24 are Not Obvious over Marisic in view of Fernholz et al. and optionally in view of Mielke et al.**

Claims 13-24 are rejected under § 103(a) over Marisic (US 2,384,946) in view of Fernholz et al. (US 3,939,199) and optionally in view of Mielke et al. (US 5,656,195). Applicants respectfully traverse the rejection.

Claims 13-24 are not obvious over Marisic in view of Fernholz et al. and/or Mielke et al., because the combination of the references fails to teach or suggest each and every element of the claimed subject matter. There is no teaching or suggestion in Marisic that a lyosol is introduced into a moving medium which does not perceptibly dissolve in the lyosol. Quite to the contrary, Marisic expressly teaches: "it is essential ... that the sol be not mechanically disturbed during the time of setting." See page 2, right column, lines 1-5. Consistent with this contrary teaching, the fluid

medium filling most of Marisic's tank 11 does not flow substantially against the direction of the force of gravity – it is not taught to flow at all. (See page 2, right col., lines 41-56.

Therefore, Marisic fails to teach or suggest mixing gel forming components to produce a lyosol, after which the lyosol, in order to form a lyogel, is introduced into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol.

Fernholz et al. fails to cure the deficiencies of Marisic. Fernholz et al. forms particles without pores by hydrolysis of silicium, zirconium and titanium tetrachloride in a hydrogen-air or oxyhydrogen flame or by melting micronized substances by blowing the particles through a hot flame. See column 1, line 66 to column 2, line 9. There is no teaching or suggestion in Fernholz et al. to mix gel-forming components to produce a lyosol. Therefore, Fernholz et al. does not teach or suggest mixing the gel forming components to produce a lyosol, after which the lyosol, in order to form a lyogel, is introduced into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol.

Mielke et al. also fails to cure the deficiencies of Marisic. Mielke et al. teaches molding of particles and states that silica gel particles can be prepared from a waterglass solution by the stages of silica hydrogel, solvent exchange, and subsequent supercritical drying. See column 2, lines 30-36 of Mielke et al. There is no teaching or suggestion in Mielke et al. to introduce a lyosol into a moving medium which does not perceptibly dissolve in the lyosol. Therefore, Mielke et al. does not teach or suggest mixing the gel forming components to produce a lyosol, after which the lyosol, in order to form a lyogel, is introduced into a moving medium which flows substantially against the direction of the force of gravity and which does not perceptibly dissolve in the lyosol. Mielke et al thus fails to cure the deficiencies of Marisic taken with or without Fernholz et al.

Because Marisic in view of Fernholz et al. and/or Mielke et al. fails to teach or suggest each and every element of the claimed invention, the rejection is in error and should be withdrawn.

## VI. Conclusion

In view of the foregoing amendments and remarks, applicants respectfully request reconsideration of the application and allowance of the claims.

Respectfully submitted,  
Forbert et al.

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Rachelle Chery 10/22/01  
Rachelle Chery Date

Attorney Docket No. AE97/151US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
(03259.84946)

Applicants: Forbert et al. Paper No: 9 (appendix)  
U.S. Serial.No.: 09/447,030 Group Art Unit: 1754  
Filed: November 22, 1999 Examiner: Nguyen, N.M.  
Title: Method for Producing Substantially Globular Lyogels and Aerogels

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Appendix A  
Version of Claims Showing Changes Made

Claim 23. (Amended) A process comprising using the Use of substantially globular lyogels produced according to claim 1, for the production to produce of aerogels.